

Amendments to the Claims:

Listing of Claims:

1. (Currently amended) A pattern-matching processing method, comprising:
an area generating step for generating a left area and a right area each having a given range from a left image and a right image photographed in stereo[[,]];
a pixel ~~generating~~interpolating step for generating an interpolation pixel between pixels of a plurality of pixels ~~contained~~ included respectively in the left area [[or]]and the right area, wherein the pixel interpolating step includes performing a first pixel interpolation between two first adjacent pixels along a first direction in the left area and in the right area, and performing a second pixel interpolation between two second adjacent pixels along a second direction perpendicular to the first direction, wherein the second pixel interpolation includes calculating an average value of plural pixels surrounding the position to be interpolated, wherein in calculating the average value the already interpolated pixels among the plural pixels surrounding the position to be interpolated are assigned a weight of less than 1; and
a pattern matching step for performing pattern matching using the left area interpolated with the corresponding interpolation pixels and the right area interpolated with the corresponding interpolation pixels.
2. (Currently amended) A pattern-matching processing method, as set forth in claim 1, wherein ~~pattern matching is performed based on said left area and said right area containing the interpolation pixel, in said pattern matching step~~ said first and second pixel interpolations are performed on said left area and said right area containing the number of pixels surrounding the matching position specified by pattern matching based on an original left area and an original right area, in said pixel interpolating step.

3. (Currently amended) A pattern-matching processing method, ~~as set forth in claim 1, wherein pattern matching is performed based on said left area and said right area interpolated with the interpolation pixel, in said pattern matching step comprising:~~

an area generating step for generating a left area and a right area each having a given range from a left image and a right image photographed in stereo;

a pixel interpolating step for generating an interpolation pixel between pixels of a plurality of pixels included in either the left area or the right area, wherein the pixel interpolating step includes performing a first pixel interpolation between two first adjacent pixels along a first direction in the left area or in the right area, and performing a second pixel interpolation between two adjacent pixels along a second direction perpendicular to the first direction, wherein the second pixel interpolation includes calculating an average value of plural pixels surrounding the position to be interpolated, wherein in calculating the average value the already interpolated pixels among the plural pixels surrounding the position to be interpolated are assigned a weight of less than 1; and

a pattern matching step for performing pattern matching using the area interpolated with the corresponding interpolation pixel and the area without interpolation pixels.

4. (Currently amended) A pattern-matching processing method, as set forth in claim ~~[[1]]3~~, wherein ~~pixel interpolation is said first and second interpolations are performed on [[a]] said left area and [[a]] said right area containing a pixel at the center, the number of pixels surrounding the matching position of which has been specified by pattern matching based on [[the]] an original left area and [[the]] an original right area, in said pixel generating interpolating step.~~

5-8. (Cancelled)

9. (Currently amended) A pattern-matching processing method, as set forth in claim ~~[[7]]1~~, wherein said second pixel interpolation is performed starting from the pixel position at

which the number of pixels surrounding the position to be interpolated is largest, which is the target for which the average value is calculated, in said pixel ~~generating~~ interpolating step.

10-11. (Cancelled)

12. (Currently amended) An image processing apparatus measuring the distance to an object that is photographed as images, by performing pattern-matching processing based on left and right images photographed by a stereo camera, [[and]] comprising:

~~a pixel-an area~~ generating unit for generating a left area and a right area each having a fixed range from the left image ~~and the right image and for generating interpolation pixels between pixels contained in the left area or the right area;~~

a pixel interpolating unit for generating an interpolation pixel between pixels of a plurality of pixels included respectively in the left area and the right area, wherein the pixel interpolating step includes performing a first pixel interpolation between two first adjacent pixels along a first direction in the left area and in the right area, and performing a second pixel interpolation between two second adjacent pixels along a second direction perpendicular to the first direction, wherein the second pixel interpolation includes calculating an average value of plural pixels surrounding the position to be interpolated, wherein in calculating the average value the already interpolated pixels among the plural pixels surrounding the position to be interpolated are assigned a weight of less than 1; and

a pattern-matching processing unit having a pattern-matching unit performing pattern matching based on the left area interpolated with the corresponding interpolation pixels and the right area interpolated with the corresponding interpolation pixels, or based on one of the areas without pixel interpolation and the other area interpolated with the corresponding interpolation pixels and a distance-measuring unit for calculating the distance from the difference in positions of the left image and the right image based on the matching position specified by performing pattern matching on the left area and the right area.

13-14. (Cancelled)

15. (Currently amended) An image processing apparatus, as set forth in claim 12, wherein said pixel ~~generating-interpolating~~ unit performs pixel interpolation on ~~[[a]] the left area and [[a]] the right area containing a pixel at the center, the number of pixels surrounding the matching position of which has been~~ specified by pattern matching based on ~~said an original~~ left area and ~~said an original~~ right area.

16. (Currently amended) An image processing apparatus, as set forth in claim 12, wherein said pixel ~~generating-interpolating~~ unit performs pixel interpolation on ~~[[a]] the right area containing a pixel at the center, the number of pixels surrounding the matching position of which has been~~ specified by pattern matching based on ~~[[said]] an original~~ left area and ~~[[said]] an original~~ right area.

17-19. (Cancelled)

20. (Currently amended) An image processing apparatus, as set forth in claim ~~[[18]]~~12, wherein said pixel ~~generating-interpolating~~ unit performs pixel interpolation starting from the pixel position at which the number of pixels surrounding the position to be interpolated is largest, which is the target for which the average value is calculated.

21-22. (Cancelled)

23. (New) A pattern-matching processing method, as set of forth in claim 3 or 4, wherein said second pixel interpolation is performed starting from the pixel position at which the number of pixels surrounding the position to be interpolated is largest, which is the target for which the average value is calculated, in said pixel interpolating step.

24. (New) An image processing apparatus measuring the distance to an object that is photographed as images, by performing pattern-matching processing based on left and right images photographed by a stereo camera, comprising;

an area generating unit for generating a left area and a right area each having a fixed range from the left image;

a pixel interpolating unit for generating an interpolation pixel between pixels of a plurality of pixels included in respectively the left area and the right area, wherein the pixel interpolating step includes performing first pixel interpolation between two first adjacent pixels along a first direction in the left area and in the right area, and performing a second pixel interpolation between two second adjacent pixels along a second direction perpendicular to the first direction, wherein the second pixel interpolation includes calculating an average value of plural pixels surrounding the position to be interpolated, wherein in calculating the average value the already interpolated pixels among the plural pixels surrounding the position to be interpolated are assigned a weight of less than 1; and

a pattern-matching processing unit having a pattern-matching unit performing pattern matching based on the left area interpolated with the corresponding interpolation pixels and the right area interpolated with the corresponding interpolation pixels, or based on one of the areas without pixel interpolation and the other area interpolated with the corresponding interpolation pixels; and

a distance measuring unit for calculating the distance from the difference in positions of the left image and the right image based on the matching position specified by performing pattern matching on the left area and the right area.